REMARKS

Reconsideration and withdrawal of the refusal to register are respectfully requested in view of the foregoing amendments and the following remarks.

Claims 1-8 are pending in the application. These claims have been canceled and replaced with new claims 9-13 which more clearly define the invention. The specification has also been amended for clarity. No new matter has been added.

Claims 1-8 stand rejected under 35 U.S.C. §103(a) as obvious over Enomoto et al. in view of Stoffel. The Examiner believes that Enomoto discloses all of the claimed invention except for the use of barium titanate and that Stoffel teaches this in the same context.

The Examiner's rejection is faulty. The Examiner mistakenly assumes that the claimed weak portion that functions as a fuse is taught by Enomoto at reference numeral 62 (or perhaps 61). While this portion can be viewed as a weakened portion, its purpose is not to act as a fuse. It is designed to limit the conduction of heat. See col. 7, lines 50-61 of Enomoto.

A better, though still faulty rejection not made by the Examiner is that the prior art figures in Enomoto teach the claimed weakened portion. See the Enomoto Patent, Figure 10, reference numeral 15 and column 2, lines 3-11, which state:

> "In, the thermistor device 1', when the current flowing through the PTC thermistor 5 becomes larger than a predetermined threshold current after a thermal runaway is caused in the PTC thermistor 5, the connection portion 15 having the small width is fused (i.e., melted and/or cut). Therefore, the temperature of the PTC thermistor 5 can be

prevented from becoming higher than a predetermined abnormal threshold temperature thereof."

As illustrated in Figs. 9 and 10, of Enomoto the thermistor device 1' is constructed in such a way that a connecting portion 15 is formed on a portion of the spring member 3a, so that it is cut off by short-circuit current generated at the time of the breakage of a PTC element. However, the spring member 3a must be inserted into an outer packaging case 2 and be brought into contact with the PTC thermistor 5. When spring members 3a and the PTC thermistor 5 are fitted into the outer packaging case 2 at the same time, the connection portions 15 of the spring members 3a may be cut off or deformed by physical force applied during the assembly process, thus preventing the spring members 3a from properly functioning.

The problem can be overcome by fitting the spring members 3a into the outer packaging case 2 prior to fitting the PTC thermistor 5 into the outer packaging case 2. At this time, while the PTC element is inserted into the gap between the spring members 3a, scratches may occur on both electrodes of the PTC thermistor 5 which can cause the electrical deterioration of the PTC thermistor 5. In the case where the PTC thermistor 5 is inserted into the gap formed while the spring members 3a are spaced apart from each other so as to prevent such scratches, the assembly of the thermistor device is complicated, so that it is difficult to assemble the thermistor device. In contrast, the present invention does not have the above-described problems.

As illustrated in FIGS. 1 and 11 of Enomoto, the device 21 is constructed in

such a way that spring pieces 38 are formed on the portions of each of the spring members 28a, so that the spring pieces 38 support a PTC thermistor 22 and are thermally and electrically cut off at the time of the breakage of the PTC thermistor 22. However, the spring pieces 38 are formed on the portions of each spring member 28a that come into contact with the PTC thermistor 22, and each spring member 28a comes into contact with the PTC thermistor 22 at four points. Therefore, the cutoffs of the spring members 28a are limited in their ability to prevent continuous breakage attributable to the continuous inflow of excessive current caused by short-circuit surge current generated at the time of the breakage of the PTC thermistor 22.

First, the inflow of excessive current is blocked by the opening of the circuit only when all four contacts are cut off. From a structural view point, it is difficult to allow all four spring pieces 38 to be cut off at the same time.

Second, since the spring pieces 38 are formed to have elasticity with respect to the body of the spring member 28a, short circuit may occur between the spring member 28a and the PTC thermistor 22 even though the spring pieces 38 have been cut off.

Third, even though the spring pieces 38 have been cut off, the PTC thermistor 22 connects to the spring member 28a if the PTC thermistor 22 collapses, thus causing a short circuit.

Accordingly, the Enomoto device is disadvantageous in that second and third continuous breakages can be caused due to the above-described problems. In contrast, the present invention does not have the above-described problems.

As explained above, the window-shaped rectangular cut portion 61 of the Enomoto device is defined to form a low thermal conductive portion having a relatively smaller section. The function of the window-shaped rectangular cut portion 61 is to prevent thermal conduction from being transferred from the spring member 28a to a connection terminal 25a. As a result, the spring pieces 38 of the spring member 28a can melt and become cut or fused. The function of the window-shaped rectangular cut portion 61 is completely different from the function of the weak portion of the present invention in that the weak portion of the present invention is cut off by short-circuit surge current generated at a time of breakage of the PTC element attributable to thermal and electrical stress.

As described above, the present invention is very different from the prior art in technical construction. The differences between the present invention and the cited art are distinctive, so that the present invention is not obvious to those skilled in the art to which the present invention pertains.

REQUEST FOR THREE MONTH EXTENSION OF TIME

Finally, Applicant hereby requests a three-month extension of time to respond to the outstanding Office Action. A PTO-2038 form in the amount of $475.00 (small entity) is enclosed herewith for the official fee associated therewith.

The Commissioner is hereby authorized to credit any overpayment or charge any fee deficiency to Deposit Account No. 07-0130.

CONCLUSION

Applicant's respectfully submit that all pending claims as amended, are now in condition for allowance. If the Examiner has any questions or comments which may expedite the prosecution of this application, the Examiner is respectfully requested to contact Applicant's attorney at the telephone number set forth below.

Dated: 8/27/04

Respectfully submitted,

Daniel P. Burke, (30,735)
GALGANO & BURKE
Attorneys for Applicant
300 Rabro Drive, Suite 135
Hauppauge, NY 11788
Telephone: (631) 582-6161